REMARKS

Claims 1-16 have been examined. Claims 1-4 have been rejected under 35 U.S.C. § 102(e), and claims 5-16 have been rejected under 35 U.S.C. § 103(a).

I. Preliminary Matters

The Examiner has objected to the Abstract. Accordingly, Applicant has amended the Abstract and respectfully requests the Examiner to withdraw the objection.

The Examiner has indicated that the drawings filed on June 18, 1999 are acceptable. However, formal drawings were later filed on September 18, 1999. Therefore, Applicant respectfully requests that the Examiner indicate whether the formal drawings filed on September 18, 1999 are acceptable in the next Office Action.

Also, Applicant has amended claim 16 to correct a minor error. Such amendment is not made in response to any rejection, and does not narrow the scope of the claim.

II. Rejection under 35 U.S.C. § 102(e) over U.S. Patent No. 6,166,831 to Boyd et al. ("Boyd")

Claims 1-4 have been rejected under 35 U.S.C. § 102(e) as being anticipated by Boyd.

A. Claim 1

Applicant submits that claim 1 is patentable over the cited reference. For example, claim 1 recites a plurality of image sensing elements arranged in parallel at a pitch equivalent to at least twice the height of an image sensing element.

The Examiner maintains that Boyd discloses the above feature. In particular, the Examiner maintains that it is inherent in Boyd that the separation of rows can be at least twice the height of the image sensing element. However, Applicant believes the Examiner is misinterpreting and/or misapplying the cited reference. For example, Boyd discloses that fabrication tolerances during manufacturing can result in lateral separation of pixels 34, 36 (i.e. separation between rows 30, 32), and that lateral separation can vary as much as ½ of pitch W_1 of the cells in the longitudinal direction (Fig. 2; col. 2, line 66 to col. 3, line 5). The reference states that lateral spacing is kept in that range so that the two rows 30, 32 effectively function as one row (col. 3, lines 5-7). However, contrary to the Examiner's assertion, a lateral spacing of ½ the pitch of W_1, does not disclose the claimed spacing at a pitch equivalent to twice (2x) the height of an image sensing element (i.e., $\frac{1}{2}W_1 \neq 2W_1$). In other words, Boyd fails to teach or disclose that lateral spacing of rows 30 and 32 is set to twice the height of pixels 34 or 36 (Fig. 2).

Accordingly, Applicant submits that claim 1 is patentable over the cited reference.

B. Claim 2

Since claim 2 is dependent upon claim 1, Applicant submits that such claim is patentable at least by virtue of its dependency.

C. Claim 3

Applicant submits that claim 3 is patentable over the cited reference. For example, claim 3 recites that a second row of image sensing elements is offset from a first row of image sensing elements by a predetermined amount which is equivalent to one half of the width of an image sensing element in the second row of image sensing elements.

The Examiner maintains that Boyd disclose such a feature. However, Applicant believes the Examiner is misinterpreting and/or misapplying the cited reference. For example, Boyd fails to teach that rows 30 and 32 are offset at an amount equivalent to ½ the width of pixels 34 and 36. Rather, the reference just states that rows 30 and 32 can be "staggered" with respect to one another (col. 3, lines 7-9). The term "staggered" is not defined with any specific measurement, and therefore does not disclose the claimed predetermined offset amount of ½ the width of an image sensing element.

The Examiner also maintains that Figure 2 of Boyd discloses the features of claim 3. However, Fig. 2 fails to disclose the offset amount of row 32. As noted in MPEP § 2125, "[w]hen the reference does not disclose that the drawings are to scale and is silent as to dimensions, arguments based on measurement of the drawing features are of little value." *See Hockerson-Halberstadt, Inc. v. Avia Group Int'l*, 222 F.3d 951, 956 (Fed. Cir. 2000). Accordingly, the Examiner cannot argue that Fig. 2 suggests an offset amount of ½ the width of pixel 34, since Boyd is silent as to any offset amount and does not disclose or suggest that the drawings are drawn to scale.

Accordingly, Applicant submits that claim 3 is patentable over the cited reference and respectfully requests the Examiner to withdraw the rejection.

Additionally, since claim 3 is dependent upon claim 1, Applicant submits that such claim is patentable at least by virtue of its dependency.

D. Claim 4

Since the features of claim 4 are similar to the features of claim 3, as recited above, Applicant submits that claim 4 is patentable for at least similar reasons.

Additionally, since claim 4 is indirectly dependent upon claim 1, Applicant submits that such claim is patentable at least by virtue of its dependency.

III. Rejection under 35 U.S.C. § 103(a) over Boyd in view of E. P. Publication 0663763 A2 to Philbrick ("Philbrick")

Claims 5-8 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Boyd in view of Philbrick. However, since claims 5-8 are dependent, either directly or indirectly, upon claim 1, and Philbrick fails to cure the deficient teachings of Boyd, Applicant submits that claims 5-8 are patentable at least by virtue of their dependency.

IV. Rejection under 35 U.S.C. §103(a) over Boyd in view of U.S. Patent No. 5,859,712 to Kim ("Kim").

Claims 9-12 have been rejected under 35 U.S.C. § 103(a) a being unpatentable over Body in view of Kim.

A. Claim 9

The Examiner maintains that the combination of Boyd and Kim suggest the features recited in claim 9. However, claim 9 contains features which are similar to the features recited in claim 1. Therefore, Applicant submits that claim 9 is patentable over the Boyd reference for at least similar reasons as set forth above. In addition, since Kim fails to cure the deficient teachings of Boyd, Applicant submits that claim 9 is patentable over the combination of the cited references.

B. Claim 10

Since claim 10 is dependent upon claim 9, Applicant submits that claim 10 is patentable for at least similar reasons.

C. Claims 11 and 12

Since claims 11 and 12 contain similar features as discussed above regarding claim 3, Applicant submits that claims 11 and 12 are patentable over the combination of the cited references for at least similar reasons.

In addition, since claims 11 and 12 are dependent, either directly or indirectly, on claim 9, Applicant submits that such claims are patentable at least by virtue of their dependency.

V. Rejection under 35 U.S.C. § 103(a) over Boyd in view of Kim and Philbrick.

Claims 13-16 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Boyd in view of Kim and Philbrick. However, since claims 13-16 are dependent, either directly or indirectly, upon claim 9, and Kim and Philbrick fail to cure the deficient teachings of Boyd, Applicant submits that such claims are patentable at least by virtue of their dependency.

VI. Newly added claims

Applicant has added claims 17 and 18 to provide more varied protection for the present invention.

VII. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any

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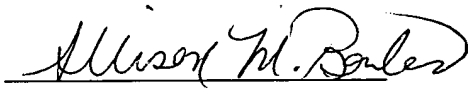
Respectfully submitted,



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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims are amended as follows:

16. (Once Amended) The color image capturing device according to claim 12, wherein a shield is provided on a light-receiving surface of image sensing elements in said plurality of groups of image sensing elements, said shield having an opening which is smaller than a light-receiving area of said image sensing elements for shielding a periphery of said image sensing elements from light.

Claims 17 and 18 are added as new claims.

IN THE ABSTRACT OF DISCLOSURE:

The abstract is changed as follows:

[The object of the present invention is to provide a color image capturing device which performs a reading operation at high resolution in a main scanning direction at high seed, and a reading operation at low resolution in a sub scanning direction at high speed.]

A color image capturing device provided with groups of two rows of photoelectric conversion elements for each color of R, G and B is mounted on a carriage and planar color images are read by moving the carriage in a sub scanning direction. As each first row of photoelectric conversion elements and each second row of photoelectric conversion elements are offset from each other by an amount equivalent to a half of the width of an individual element in a main scanning direction, and resolution in the main scanning direction is enhanced. As each

row of photoelectric conversion elements is arranged at pitch equivalent to the height of four rows, all the rows of photoelectric conversion elements can read the same line, even if the carriage is moved at speed twice or four times as fast as that in reading at 600 dpi to read at the resolution of 300 dpi or 150 dpi in the sub scanning direction at high speed in case the reading resolution of each row of photoelectric conversion elements is 600 dpi.